

# METHOD AND APPARATUS FOR DEMODULATING SIGNALS IN A PULSE OXIMETRY SYSTEM

## Abstract of the Disclosure

A method and an apparatus measure blood oxygenation in a subject. A first  
5 signal source applies a first input signal during a first time interval. A second signal  
source applies a second input signal during a second time interval. A detector detects a  
first parametric signal responsive to the first input signal passing through a portion of  
the subject having blood therein. The detector also detects a second parametric signal  
responsive to the second input signal passing through the portion of the subject. The  
10 detector generates a detector output signal responsive to the first and second parametric  
signals. A signal processor receives the detector output signal and demodulates the  
detector output signal by applying a first demodulation signal to a signal responsive to  
the detector output signal to generate a first output signal responsive to the first  
parametric signal. The signal processor applies a second demodulation signal to the  
15 signal responsive to the detector output signal to generate a second output signal  
responsive to the second parametric signal. The first demodulation signal and the  
second demodulation signal both include at least a first component having a first  
frequency and a first amplitude and a second component having a second frequency and  
a second amplitude. The second frequency is a harmonic of the first frequency. The  
20 second amplitude is related to the first amplitude to minimize crosstalk from the first  
parametric signal to the second output signal and to minimize crosstalk from the second  
parametric signal to the first output signal.